



US005865700A

**United States Patent** [19][11] **Patent Number:** 5,865,700**Horsch**[45] **Date of Patent:** Feb. 2, 1999[54] **HYDRO-MECHANICAL TRANSMISSION**

5,024,278 6/1991 Shuknecht ..... 56/12.8 X

[75] **Inventor:** Joachim Horsch, Lombard, Ill.

5,494,142 2/1996 Kale .

5,505,267 4/1996 Orbach et al. .

5,549,185 8/1996 Kale .

5,667,452 9/1997 Coutant ..... 475/80 X

[21] **Appl. No.:** 847,195**FOREIGN PATENT DOCUMENTS**[22] **Filed:** May 1, 1997

0 444 472 A2 2/1991 European Pat. Off. .

4311 084 C1 4/1993 Germany .

[51] **Int. Cl.<sup>6</sup>** ..... F16H 47/04**Primary Examiner**—Khol O. Ta**Attorney, Agent, or Firm**—Foley & Lardner[52] **U.S. Cl.** ..... 475/72; 475/78; 475/82[58] **Field of Search** ..... 475/72, 76, 78,  
475/80, 81, 82; 180/243, 307, 53.1; 56/12.8,  
10.1, 11.1, 10.8

[57]

**ABSTRACT**

A hydro-mechanical transmission for an agricultural work vehicle is provided including a motor, a clutch and a differential assembly. The clutch which is rotatably supported by a housing includes first and second input shafts and a first output shaft. The first output shaft is configured to selectively couple to the first and second input shafts. The motor is coupled to the second input shaft, and the differential assembly which is rotatably supported by the housing is coupled to the first output shaft. The differential assembly includes a third input shaft coupled to the first output shaft, and a fourth input shaft coupled to the motor, and a second output shaft. The speed of the second output shaft is a combination of the speeds of the third and fourth input shafts.

[56]

**References Cited****U.S. PATENT DOCUMENTS**

3,396,607 8/1968 Ross .  
3,714,846 2/1973 Louis et al. .... 475/82 X  
3,744,344 7/1973 Olsen et al. .... 475/82 X  
3,796,111 3/1974 Schauer ..... 475/82 X  
3,903,756 9/1975 Hamma ..... 475/82 X  
4,019,404 4/1977 Schauer ..... 475/82 X  
4,138,907 2/1979 Melles ..... 475/72 X  
4,259,881 4/1981 Meyerle ..... 475/72  
4,348,855 9/1982 De Pauw et al. .... 56/10.2 X  
4,471,668 9/1984 Elsdner ..... 475/72  
4,487,002 12/1984 Knuse et al. .... 56/10.2  
4,694,648 9/1987 Beck, Jr. .  
4,913,004 4/1990 Panoushek et al. .

**28 Claims, 3 Drawing Sheets**